08827 "E96h260

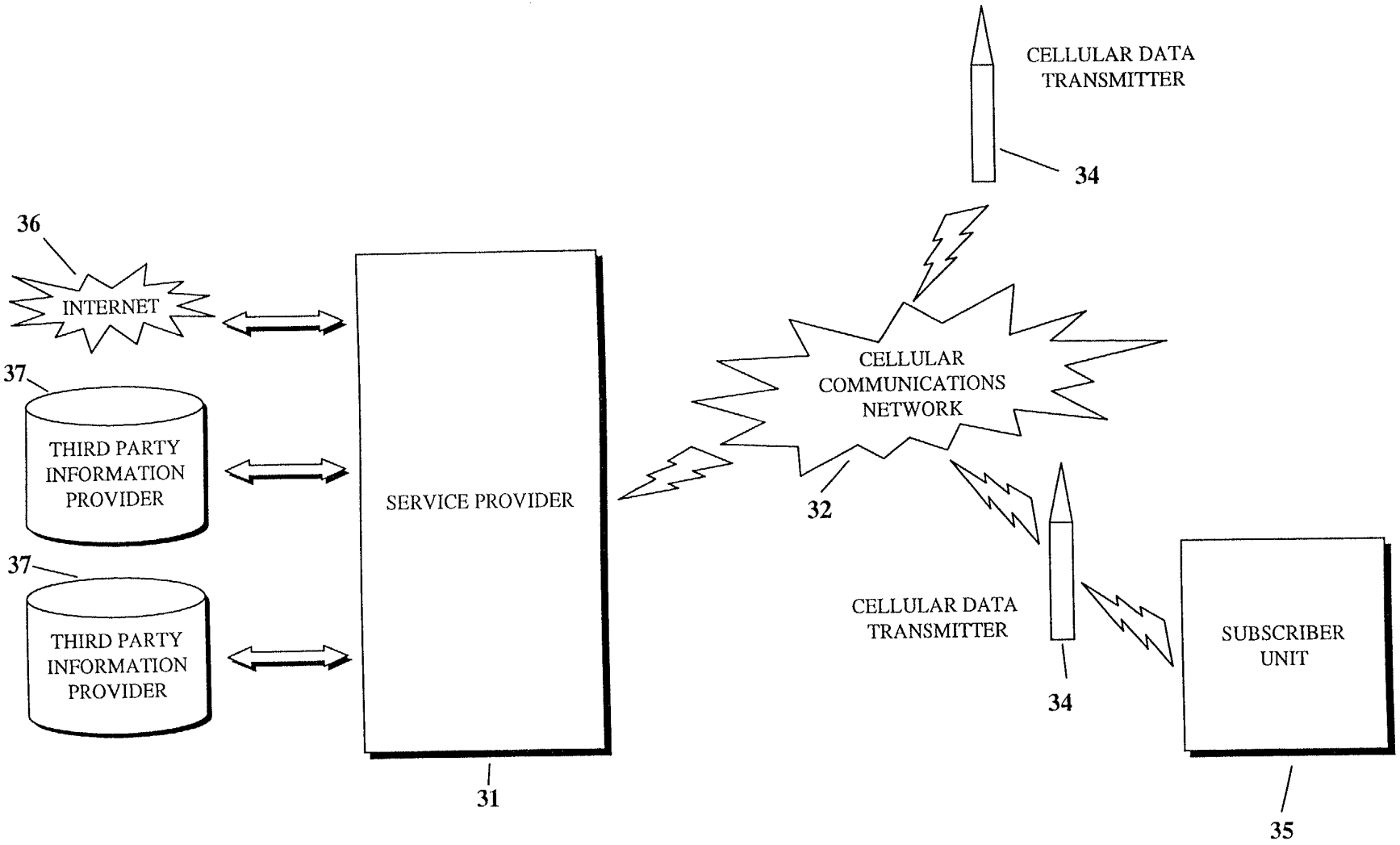

FIG. 1

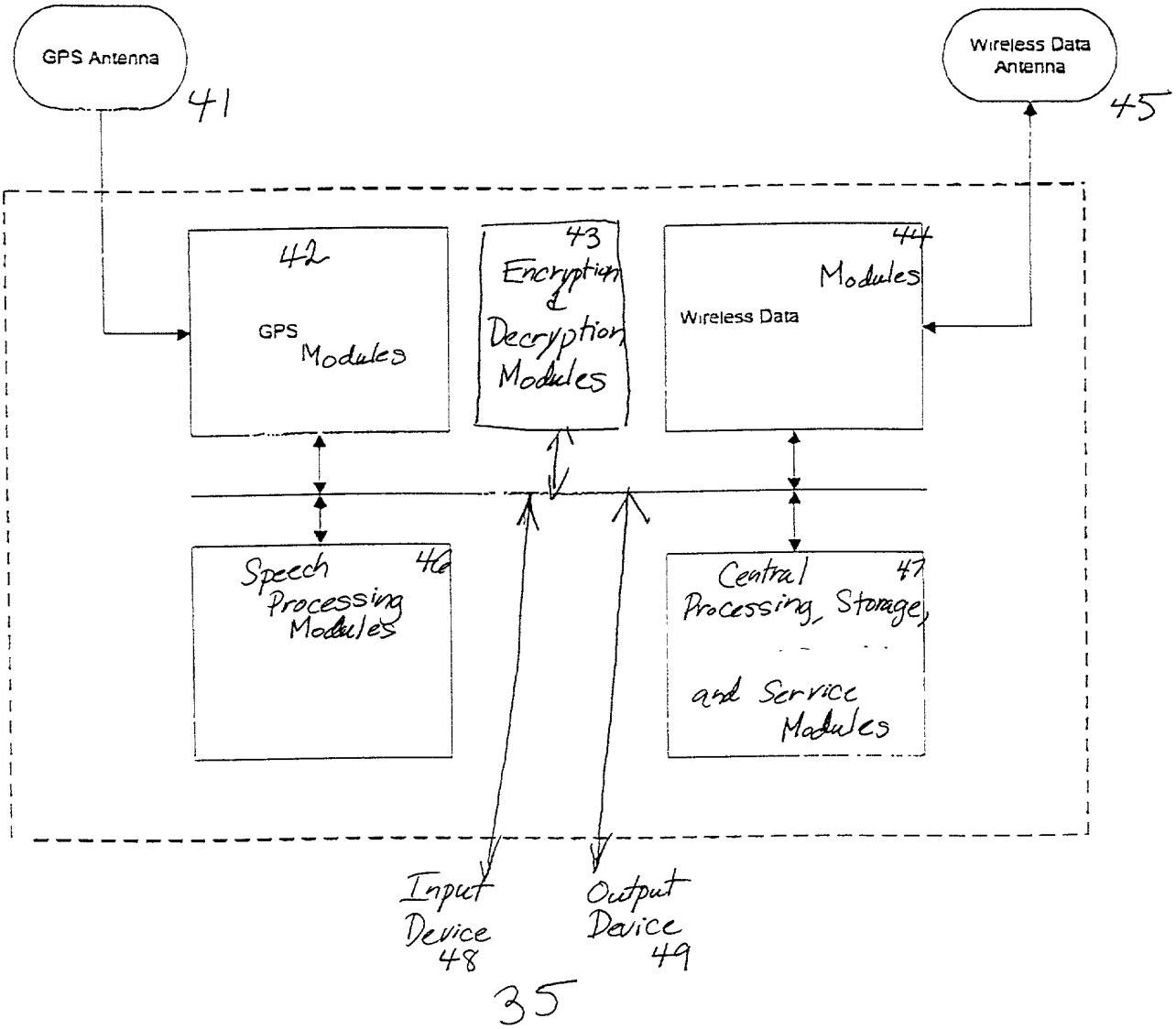
GPS Antenna
41
Wireless Data Antenna
45
42
GPS Modules
43
Encryption & Decryption Modules
44
Modules
Wireless Data
Speech Processing Modules
46
Central Processing, Storage, and Service Modules
47
Input Device 48
Output Device 49
35

FIG. 2

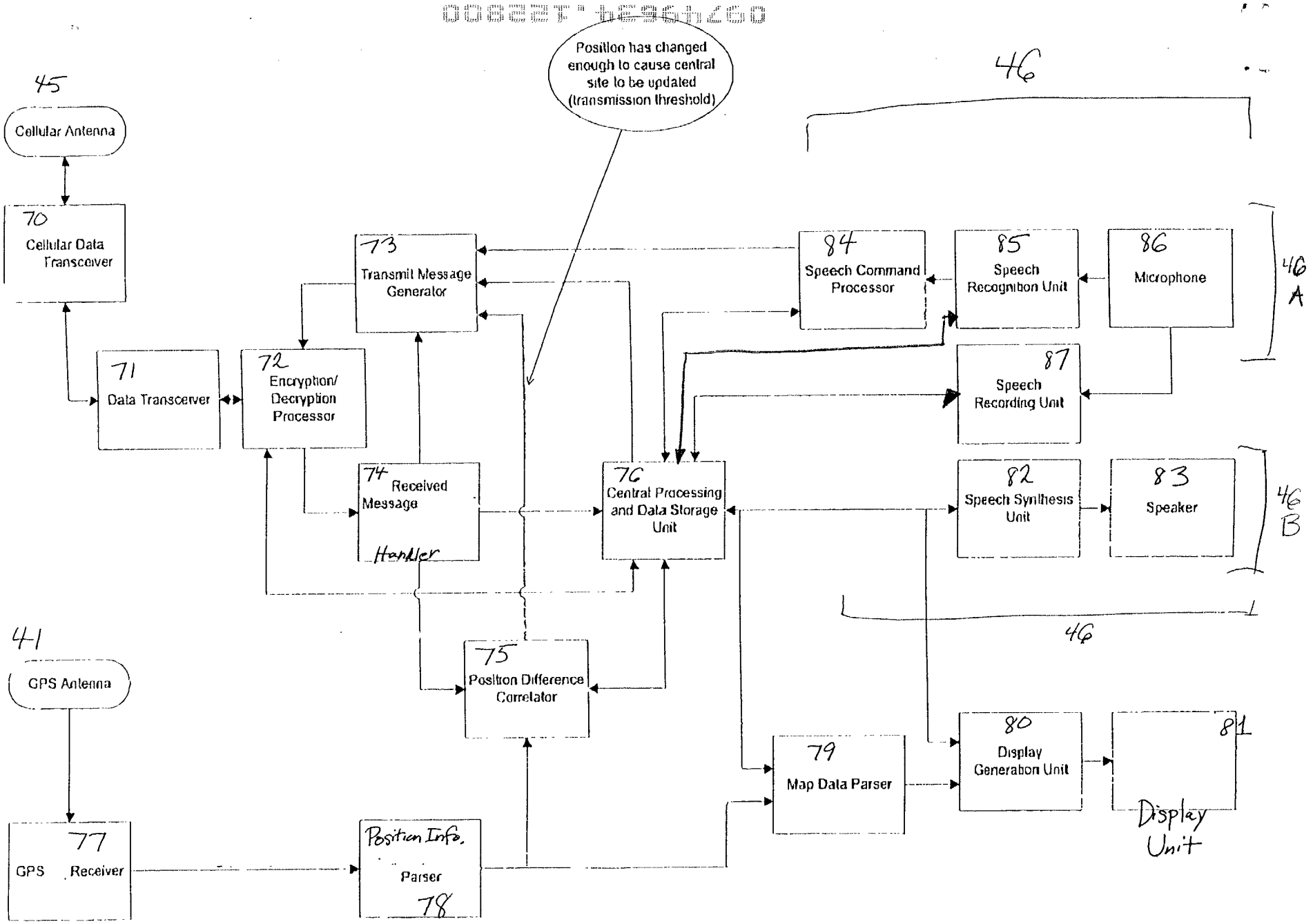
Position has changed enough to cause central site to be updated (transmission threshold)
45
Cellular Antenna
70
Cellular Data Transceiver
71
Data Transceiver
72
Encryption/ Decryption Processor
73
Transmit Message Generator
74
Received Message Handler
75
Position Difference Correlator
76
Central Processing and Data Storage Unit
41
GPS Antenna
77
GPS Receiver
Position Info. Parser
78
79
Map Data Parser
80
Display Generation Unit
81
Display Unit
82
Speech Synthesis Unit
83
Speaker
84
Speech Command Processor
85
Speech Recognition Unit
86
Microphone
87
Speech Recording Unit
46
46 A
46 B
46
End-User Navigation Device
35

FIG. 3

Service Provider Site(s)

End-User Location

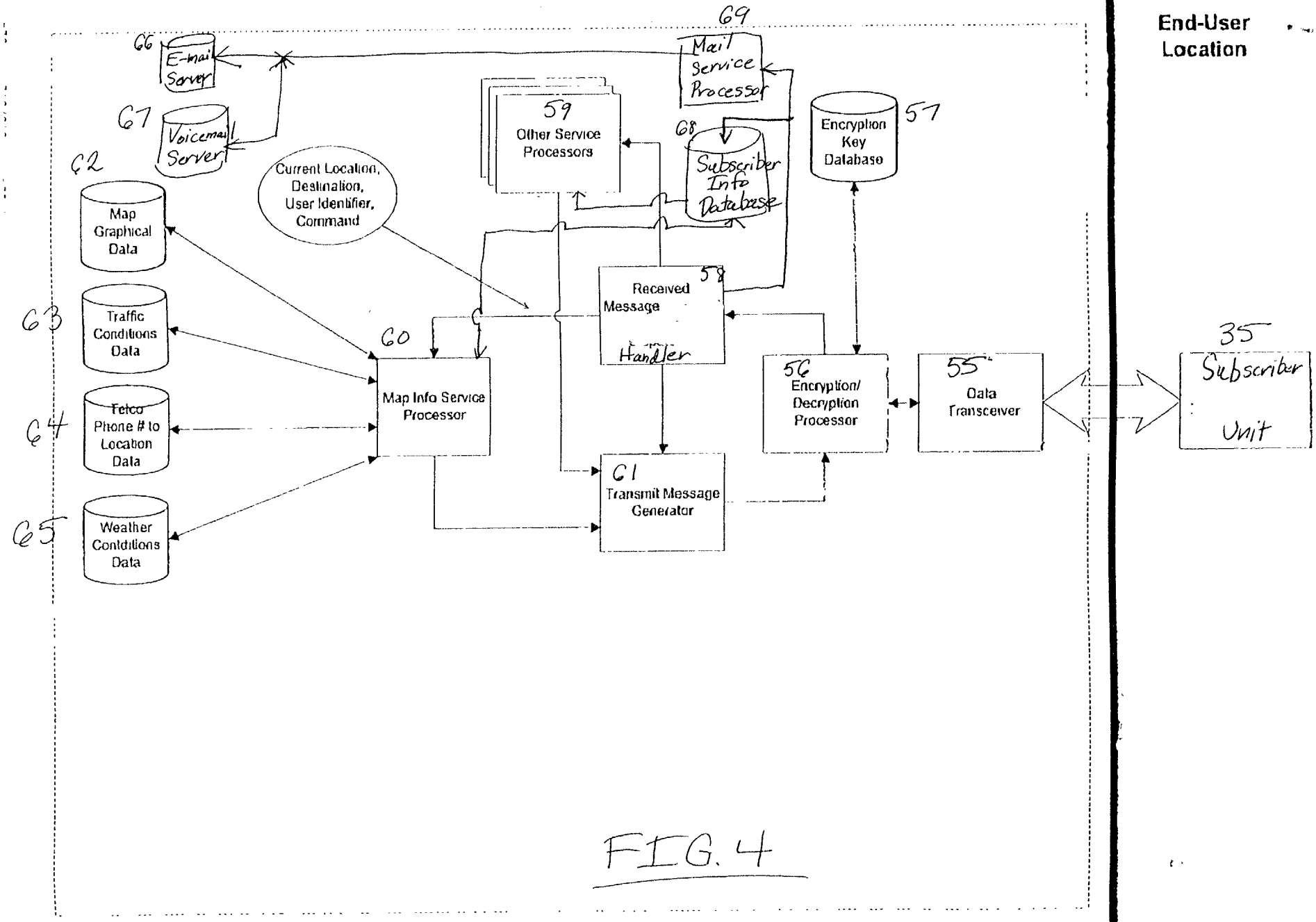

FIG. 4

Data Processing/Subscriber Service Module

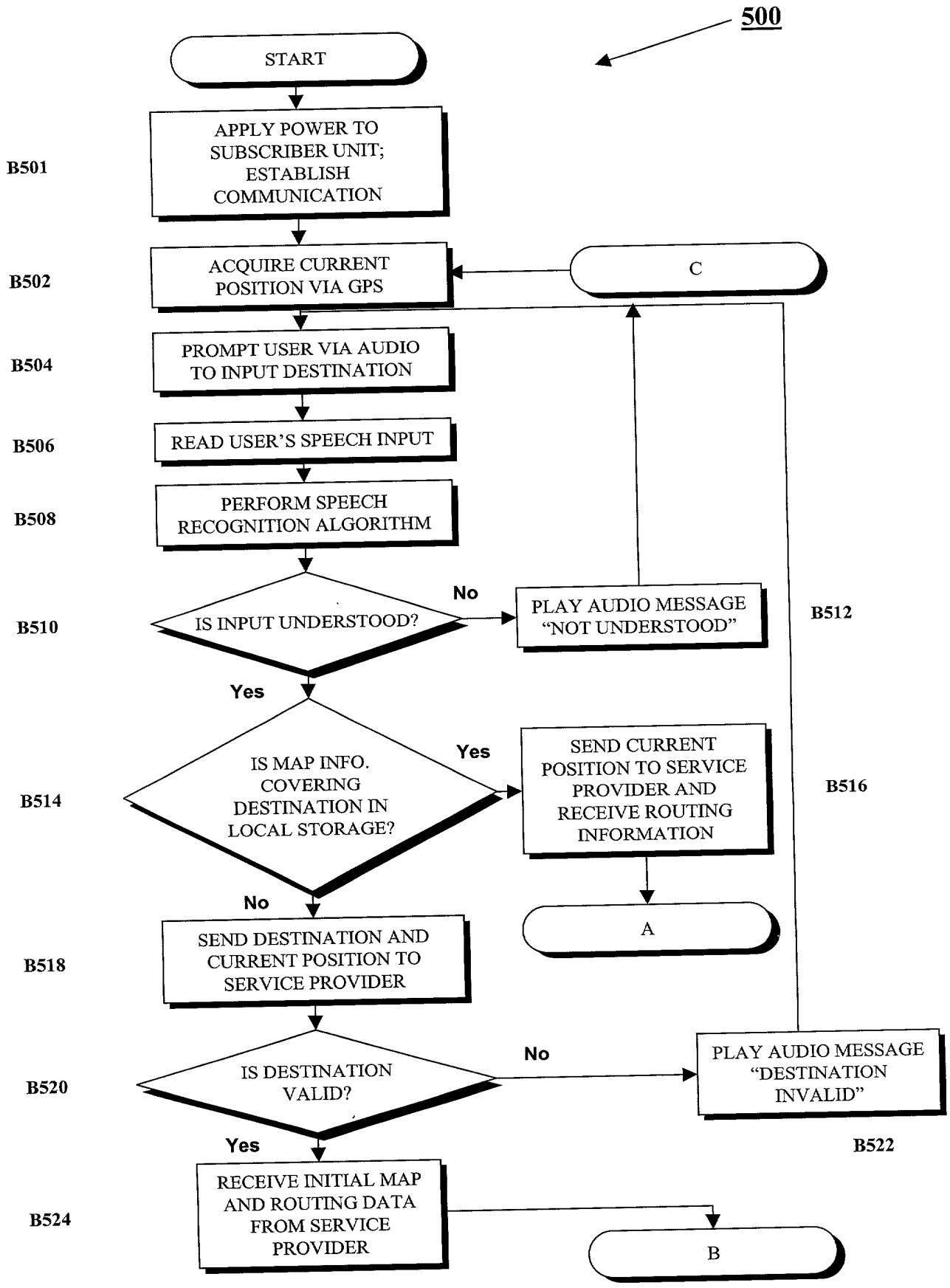
500
START
APPLY POWER TO SUBSCRIBER UNIT; ESTABLISH COMMUNICATION
B501
ACQUIRE CURRENT POSITION VIA GPS
B502
C
PROMPT USER VIA AUDIO TO INPUT DESTINATION
B504
READ USER'S SPEECH INPUT
B506
PERFORM SPEECH RECOGNITION ALGORITHM
B508
IS INPUT UNDERSTOOD?
B510
No
PLAY AUDIO MESSAGE "NOT UNDERSTOOD"
B512
Yes
IS MAP INFO. COVERING DESTINATION IN LOCAL STORAGE?
B514
Yes
SEND CURRENT POSITION TO SERVICE PROVIDER AND RECEIVE ROUTING INFORMATION
B516
A
No
SEND DESTINATION AND CURRENT POSITION TO SERVICE PROVIDER
B518
IS DESTINATION VALID?
B520
No
PLAY AUDIO MESSAGE "DESTINATION INVALID"
B522
Yes
RECEIVE INITIAL MAP AND ROUTING DATA FROM SERVICE PROVIDER
B524
B

FIG. 5

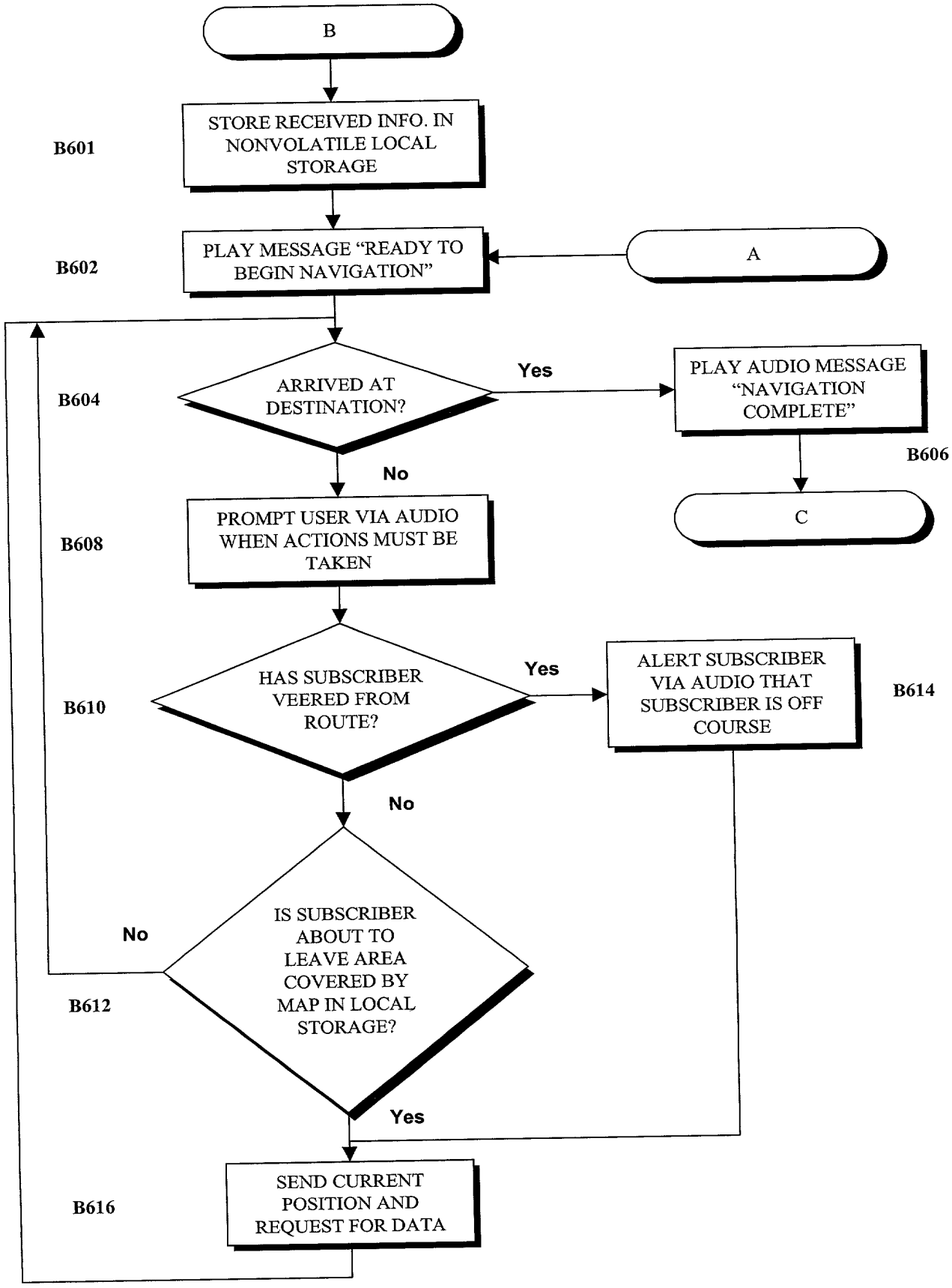
B
STORE RECEIVED INFO. IN NONVOLATILE LOCAL STORAGE
B601
PLAY MESSAGE "READY TO BEGIN NAVIGATION"
B602
A
ARRIVED AT DESTINATION?
B604
Yes
PLAY AUDIO MESSAGE "NAVIGATION COMPLETE"
B606
C
No
PROMPT USER VIA AUDIO WHEN ACTIONS MUST BE TAKEN
B608
HAS SUBSCRIBER VEERED FROM ROUTE?
B610
Yes
ALERT SUBSCRIBER VIA AUDIO THAT SUBSCRIBER IS OFF COURSE
B614
No
IS SUBSCRIBER ABOUT TO LEAVE AREA COVERED BY MAP IN LOCAL STORAGE?
B612
No
Yes
SEND CURRENT POSITION AND REQUEST FOR DATA
B616

FIG. 6